



केन्द्रीय रेशम प्रौद्योगिक अनुसंधान संस्थान

केन्द्रीय रेशम बोर्ड

(वस्त्र मंत्रालय- भारत सरकार)

बी.टी.एम. लेआउट मडिवाला बेंगलूरु- 560068

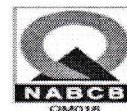
CENTRAL SILK TECHNOLOGICAL RESEARCH INSTITUTE

CENTRAL SILK BOARD

(Ministry of Textiles - Govt. of India)

B.T.M. Layout, Madivala, Bengaluru-560068

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No. CSB/CSTRI/35(43)/2024-Stores/MSRD/MRM

Date : 08.09.2025

To,

Sir,

Sub: Inviting Quotations through e-procurement portal for procurement of  
01 no. 10 Ends Multi End Reeling Machine with Low Denier Sensing  
Attachment for CSTRI, Bangalore - Reg.

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With reference to the subject cited above, I am to inform that this Institute invites quotation in two bid system through e-procurement portal <https://eprocure.gov.in> for supply of machinery as mentioned below:-

#	NAME OF THE EQUIPMENT	Specification	QTY	DESTINATION
1.	10 Ends Multi End Reeling Machine with Low Denier Sensing Attachment	Detailed Specification is enclosed	1 No.	The Director, CSTRI, Central Silk Board, BTM Layout, Madiwala, Bengaluru – 560 068

**TERMS & CONDITION :**

1. The quotation in two bid (Technical Bid & Financial Bid) system should be uploaded in e-procurement only (<https://eprocure.gov.in>). The last date for uploading the bid is **06.10.2025** upto **1.00 P.M.** and the bid will be opened on **07.10.2025** at **1.00 P.M.**
2. The rates quoted should be valid for 180 days. The equipment should be supplied within **60** days from the date of purchase order. No deviation is permitted in this aspect.
3. The equipment should be supplied to "The Director, CSTRI, Central Silk Board, BTM Layout, Madiwala, Bengaluru – 560 068".

P.T.O.

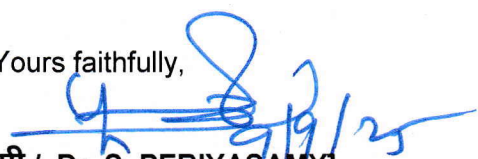
4. In the Technical Bid:

- a. The other important documents sought in the e-procurement tender should be uploaded online.
  - b. **For Non-MSME bidders/firms:** Fixed EMD of **Rs. 9,000/-** in the form of **Demand Draft** drawn in favour of the Director, CSTRI, Bangalore should reach this office by post / in person before the opening of technical bid. i.e on or before **07.10.2025** at 1.00 P.M.. The EMD should be sent in a sealed cover superscribing "EMD for Supply of **10 Ends Multi End Reeling Machine with Low Denier Sensing Attachment**". A scanned copy of the Demand Draft should be uploaded along with technical bid. The EMD does not carry any interest. Please note that cheques will not be accepted. Quotation received without EMD will summarily be rejected.
  - c. **For MSME bidders/firms:** EMD amount is exempted for MSME units. In such cases, scanned copy of **MSME certificate** has to be uploaded along with technical bid. Further, such MSME bidders should also submit the duly filled **Bid Securing Declaration form** alongwith the technical bid (as per the format enclosed) in lieu of EMD.
  - d. The bidders should submit the Bank Details i.e. Bank A/c.No., Bank Name, Branch, IFSC code. Mobile No. E-Mail ID, Aadhaar, etc. for releasing the EMD and effecting the payment.
  - e. The bidders should submit an undertaking for not being blacklisted in the letter head.
  - f. The supplier should submit the experience certificate/purchase orders relating to the supply of **10 Ends Multi End Reeling Machine with Low Denier Sensing Attachment** or any relevant textile machineries for the last three financial years.
  - g. The bidders should submit an undertaking that the above equipment to be supplied shall match with the specifications as attached.
  - h. The Bidder should submit the copy of GST Certificate, Registration certificate for establishment (if any), ITR Returns for the last three years, Turnover/Balance Sheet for the last three years, PAN number of the firm, an affidavit regarding the correctness of bid, Aadhaar along with the technical bid.
5. The Supplier shall provide Warranty for a minimum period of 12 months from the date of installation of the equipment / machineries. Any defects noticed in the equipment /machineries which are unintentional shall be set right by the supplier at free of cost for good performance of the equipments.



6. The equipment should be supplied strictly in conformity of the specifications as attached, failing which, the equipment has to be taken back at your own cost.
7. For delay & non supply of the item within the stipulated time, liquidated damages @ 0.5% per week will be deducted from the bill subject to a maximum of 10% of the total cost of the equipment.
8. The performance security equivalent to 3% of the total contract value in the form of Bank Guarantee issued by any Nationalized Bank which shall be valid till three months after the expiry of the warranty period should be furnished to this Institute within 10 days from the date of receipt of purchase order. In case of non receipt of the Bank Guarantee within the stipulated time, the said amount will be deducted while effecting the final payment.
9. No advance payment will be made. The payment will be released only after delivery of the equipment in good condition as per our specification, erection and commissioning.
10. **In the financial bid**, the bidder has to furnish the basic rate which includes transportation charges, Erection & Commissioning, insurance, loading and unloading, sufficient training of the scientific community for operation of the equipments etc. except GST that has to be mentioned separately in the BOQ format only. There should not be any kind of hidden charges.
11. The bid is to be quoted in Indian Rupee only.
12. The equipment should be fabricated strictly in conformity with the specifications (as attached) and in consultation with the scientists of MSRD Division of this institute. Pre-dispatch inspection of the said machinery will be carried out by the scientists, if needed.
13. A write up about the proposed **10 Ends Multi End Reeling Machine with Low Denier Sensing Attachment** is attached herewith for information and reference purpose.
14. The applicable GST-TDS will be deducted as per the prevailing rules.
15. **Deviation in any of the above terms and conditions will result in automatic cancellation of the bid.**
16. Director, CSTRI, Central Silk Board, Bangalore reserves right to accept or reject any bid without assigning any reason. The decision of the Director is final and no correspondence will be entertained from any party in this regard.

Yours faithfully,

  
[डॉ. एस. पेरियासामी / Dr. S. PERIYASAMY]  
निदेशक / DIRECTOR

## BID SECURING DECLARATION FORM

Tender No. **CSB/CSTRI/35(43)/2024-Stores/MSRD/MRM**

Date:

To  
Director,  
CSTRI,  
BANGALORE

I/We, The undersigned, declare that :

I/We understand that, according to your conditions, bids must be supported by a Bid Securing Declaration.

I/We accept that I/We may be disqualified from bidding for any contract with you for a period of one year from the date of notification if I am/We are in a breach of any obligation under the bid conditions, because I / We

- a) have withdrawn / modified/amended, impairs or derogates from the tender, my / our Bid during the period of bid validity specified in the form of Bid ; or
- b) having been notified of the acceptance of our Bid by the purchaser during the period of bid validity (i) fail or reuse to execute the contract, if required, or (ii) fail or reuse to furnish the Performance Security, in accordance with the Instructions to Bidders.

I/We understand this Bid securing Declaration shall cease to be valid if I am / We are not the successful Bidder, upon the earlier of (i) the receipt of your notification of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of my / our Bid.

Signed:

(Insert Signature of person whose name and capacity are shown)

In the capacity of

(Insert legal capacity of person signing the Bid Securing Declaration)

Name:

(Insert complete name of person signing the Bid Securing Declaration)

Duly authorized to sign the bid for on behalf of (Insert complete name of Bidder)

Dated on \_\_\_\_\_ day of \_\_\_\_\_ (insert date of signing)

Corporate Seal (where appropriate)

(Note: In case of Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid)

# Write-up on Development of 10-Ends Multi-End Reeling Machine with Low Denier Sensing Attachment

## Background

Multi-End Reeling Machines (MRM) are widely used for reeling silkworm cocoons to produce quality silk. However, variations in filament denier during reeling often affect yarn uniformity, quality, and raw silk recovery. The introduction of a **denier sensing attachment** will enable continuous monitoring of filament size and ensure better process control.

## Need for Development

- Existing MRMs are not equipped with automatic denier sensing or control mechanisms.
- Frequent variation in filament thickness leads to defects in raw silk and higher wastage.
- A modified **10-ends MRM** integrated with low denier sensing technology will improve reelability, enhance productivity, and reduce manual intervention.

## Objectives

1. To develop a **10-ends MRM** suitable for bivoltine cocoon reeling.
2. To integrate a **low denier sensing attachment** for real-time monitoring and regulation of filament size.
3. To improve raw silk quality, uniformity, and recovery percentage.

## Expected Outcome

- Production of **uniform, fine denier raw silk** with improved quality parameters.
- Reduction in reeling defects and manual errors.
- Enhanced efficiency and reelability in multi-end reeling units.
- Technology support for modernization of reeling sector under Silk Samagra scheme.

## Enclosures

1. Technical Specifications of 10-Ends MRM with Low Denier Sensing Attachment.
2. Design Layout of the Machine.

*Janak*  
03.09.15



# **SPECIFICATIONS FOR MULTIEND REELING MACHINE WITH DENIER SENSING ATTACHMENT**

## **1. FRAME:**

- a) Cast iron frame made of k-20 material, Bottom frame, Centre frame, and Top frame with two side brackets weighing minimum 60 to 63 Kg, machined wherever necessary.
- b) Each of the frame to its length is tied up with 16 mm MS rod, 3 numbers, (Two bottom and one top).

## **2. MOTOR AND DRIVE ARRANGEMENT:**

- a) 1 H.P. 960 rpm, 380 / 440 volts 3phase, 50 cycles induction motor shall be provided as per BIS specifications. The motor shall be from ISO certified companies.
- b) The drive arrangement shall be covered by 20gauge M.S. sheet with locking system.

## **3. MAIN SHAFT:**

- a) 25mm main bright shaft fitted with self-aligning sealed type pillow block ball bearings.

## **4. TRANSMISSION MECHANISM:**

- a) Fitted with V belt B section ( ISI mark ) chain & M.S. sprockets, EN-8 metal helical gear, CI gear and Nylon gears. The gears should be hobbled and hardened wherever necessary to minimize wear and sound.
- b) All moving parts in the machine such as gears, 'V' pulleys shall be tightened by high tensile fasteners of standard make.

## **5. REELING BASINS:**

- a) 10 reeling ends shall be accommodated in each basin and distance between ends (between the jetteboutte centres) shall be 105 mm.
- b) Made of Salem stainless steel, 304 grade with inner dimensions measuring length 42", width 15" & height 4" weighing minimum 6 kgs, with water holding capacity of 42 litres. The 3 sides of the basin are 20 mm square fold finished.
- c) Basin over flowing water arrangement connected with brass or Nylon nipples.
- d) Reeling basins with four partitions for the working convenience made of stainless steel.
- e) Each basin fitted with two stainless steel vessels (Bowl) for keeping silk waste and basin refuse.
- f) The S.S Reeling basin is positioned over the bottom frame using 1 ½" X ¼" M.S. Angle.
- g) From the top, reeling basin is positioned at a height at 32" from floor level.
- h) Drain out nut of 25 mm size made of polypropylene or nylon material shall be provided for each basin.

## **6. STEAM PIPES:**

- a) Steam inlet is fitted with 1" M.S. pipe with 1" IBR steam valve with SS working parts and all the steam pipe lines and connected fittings should resist 35Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.
- b) Steam pressure gauge 0 – 7 kg/cm<sup>2</sup> capacity is provided with siphon pipe.
- c) 1 ¼" "C" class M.S. pipe for steam line with 3/8" or 1/2" S.S. Ball Valve, inter connected with 3/8" X 20G copper pipe, Brass flair union and M.S. Fittings with perforations 3/8" 20 gauge copper tube for providing steam to reeling basin. The copper steam pipe shall be tapered towards end and have 3 mm diameter holes. The holes shall be at the side of the steam pipes. All the steam pipe lines and connected fittings should resist 35 Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.

- d) For draining out the condensed water, ½" IBR wheel valve with M.S fittings provided at the end of the machine. All the steam pipe lines and connected fittings should resist 35 Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.

**7. WATER PIPES:**

- a) Water inlet pipe shall be fitted with 1" G.I pipe along 1" G.M. plug cock.
- b) 1 ¼" "C" class G.I. Pipe for water line, with 3/8" or ½" S.S. ball valve inter connected with 3/8" X 20 G copper pipe and brass flair union with G.I. Fittings fitted on basin tray.
- c) Steam & water pipes are fitted 1 foot over basin tray, to avoid corrosion.

**8. BUTTON AND BUTTON CLIP:**

- a) Good quality ceramic reeling buttons ( 100 Nos.) shall be supplied along with reeling machine. Brass or S.S button clip mounted on brass or SS L Clamp flexible in motion to avoid breakage of yarn due to interruptions by slugs in reeling

**9. JETTEBOUTE ASSEMBLY:**

- a) 10 numbers of jetteboutes shall be fitted in a panel made with 18-gauge stainless steel structure weighing minimum 1.9 kg and brass / Nylon bushes for holding the Jetteboute axel tightened with 5 mm S.S. Screws and distance between jetteboutes' centre shall be 105mm .
- b) Jetteboute two wings type made of Nylon-6 material fitted with stainless steel axel of 8 mm bore – (7 – 8 mm diameter bore) with its bottom & top position, outer and inner end chamfered and polished.
- c) Jockey pulley – 32 mm 7 Nos., 50 mm – 1 No., fitted with brass bolt & nut and nylon or stainless steel flat.
- d) Driven by polyurethane 5 mm round belt.
- e) Clutch type engage and disengage arrangement fitted in a C.I gear box, comprising, EN-8 axel, ball-bearings 2 numbers, EN-8 helical/bevel gears and 4" V pulleys made of Gun metal/Derlin / Norzile .
- f) Jetteboutte revolution 700 to 800 RPM. Jetteboute speed should be de-linked from the reel speed.
- g) Jetteboute mounted panel should not vibrate during reeling operation.

**10. REELS AND DRIVE MECHANISM:**

- a) Reel made of Nylon 6 material shall be of 100 mm in breadth, 670 mm to 680 mm in circumference with 10 or 12 ribs weighing 500 – 600 grams. 10 reels on basin, 10 reels as spare, (20 reels for each basin).
- b) Reel stand with 5/8" M.S. Rod fitted on MS base to keep 10 spare reels with spring and bottom portion machined.
- c) Auto individual reel stop device model A/B made of Nylon-6 material to prevent breakage of silk yarn while reeling.

MODEL A: Automatic reel stop motion consists of Nylon 6 long arm with MS bracket and magnetic stop. The rubber bush at the back fitted for stopping the reel and easy reverse rotation of reels for knotting.

MODEL B: Automatic reel stop motion device consists of M S bracket powder coated with Nylon 6 / SS long arm and levers. The rubber bush at the back fitted for stopping the reel and easy reverse rotation of reels for knotting.

- d) S.S. Reel shaft 32mm O.D. Hollow shaft or 25mm solid, 12 mm ~ 15 mm sealed ball bearings fitted on both ends with Nylon gears, locked with G.M. cone nut.



- e) Driving device for reel bar, with clutch type engage and disengage movement fitted in a C.I. gear box comprising EN-8 axel ball bearings 2 Nos., M.S. sprocket gears CI / Nylon gears with phosphorous bronze bush driven by chain.
- f) For housing the reel bar, self-locking system shall be provided in the reel gear box.
- g) Reel top, bottom and back covered by minimum 24 gauge M.S. sheet.
- h) Nylon reel button, spring and the groove made on the reel shaft should be smooth and free from friction.
- i) Two lines of steam pipe ERW (MS) 1 ¼ " diameter "C" class shall be provided throughout the length of the machine positioning below and above at back side of the small reels for drying the silk and for draining out the condensed water, ½" steam trap and ½" IBR wheel valve with M.S. fittings shall be provided for this steam pipe line at the end of the machine. All the steam line pipes and connected fittings should resist 35Kg/cm<sup>2</sup> (500lb/inch<sup>2</sup>) hydraulic test pressure.

**11. VARIABLE SPEED MECHANISM:**

- a) Step pulley mechanism to drive the reels at three different reeling speeds viz., 175 rpm, 200 rpm and 225 rpm shall be provided.

**12. DISTRIBUTION MECHANISM:**

- a) Mounting of silk on reels is 2 ½" wide in convex shape. Speed ratio of reel is 1.5:1.

**13. TRAVERSE MECHANISM:**

- a) Planetary type gear system comprising C.I body EN-8 axel, ball bearings and EN-8 helical gears, 2.5 modules hobbled of 14/15 or 18/19 teeth shall be provided.
- b) Self-aligning connecting bearing shall be fitted to the traverse.
- c) Channel shall be made of 24 G S.S sheet.
- d) Improved porcelain/ceramic thread guide with SS wire hook shall be fitted with screw fitting.
- e) Nylon rollers embedded with ball bearings, Nylon guides for each frame (on both sides), Connecting flat made of SS 10 gauge shall be provided for horizontal motion of the S.S traverse flat.

**14. THREAD GUIDE PULLEY (PLASTIC CROISSURE PULLEYS):**

- a) Plastic Croissure pulleys fitted on plated M.S. Metal strip with separate plastic covers on two sides shall be provided.
- b) 4 mm brass stud shall be fixed on both sides of bobbin.
- c) Bobbin and covers shall be made of polystyrene.
- d) Bobbin axel shall be made of silver steel (hardened) material.
- e) For each end, 4 numbers of plastic Croissure pulleys shall be provided.

**15. ELECTRICAL CONTROL PANEL:**

Suitable starter with relay system shall be provided for one HP motor.

**16. PAINT:**



- a) The entire machine shall be painted with primary paint. Then the machine shall be neatly spray painted by suitable enamel colours.
- b) Chromium plated and yellow passivated material is used to avoid corrosion wherever necessary.
- c) All bolts, nuts and washers should be electro plated.

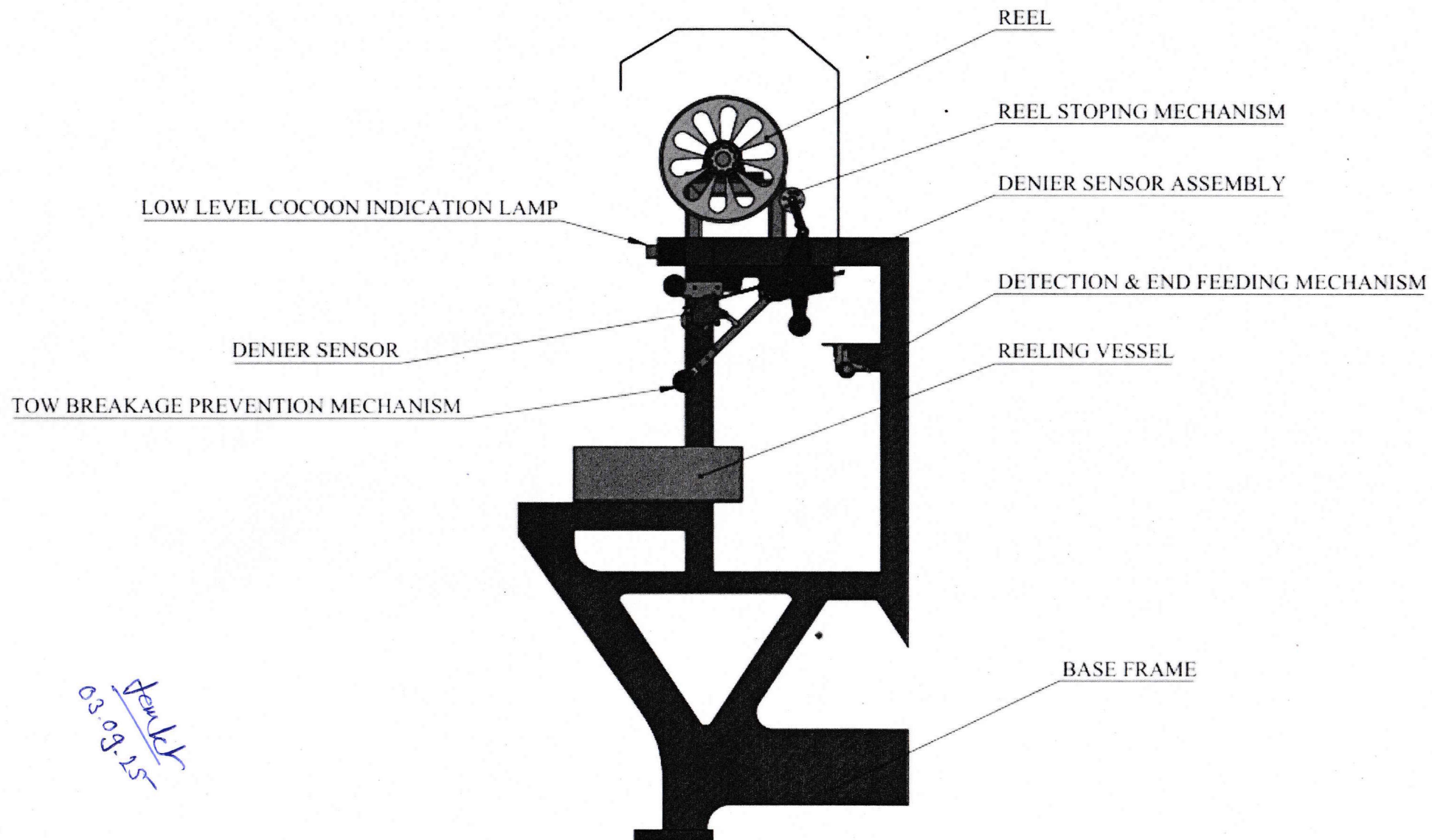
Denier detecting systems: Each reeling end of the machine will have a denier indicator for continuous denier detecting

Denier adjustment system: Simultaneous denier adjustment apparatus for performing the function of adjusting the friction between the denier indicator and raw silk in order to meet the targeted average denier whenever there is a change in cocoon filament denier, cooking conditions, reeling speeds etc.

The said system consists of an adjustment shaft which runs above the denier detecting system and below the small-reels on which worm bushes are mounted at each reeling end.

The said system will have a stainless steel chain with one end mounted on a Worm bush and the other end is connected to the balancing lever present at back end of the denier indicator.

Jankar  
03.09.25



03-09-25  
Jenker